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element in the names of several kings, and an old chant alludes to the *tahonga*.

He naunau no ta Puku-naunau.	There is a sandalwood tree in Puku-naunau.
He rongo-rongo no ta Orongo.	There is a chanter at Orongo.
He tahonga no ta Puku-tahonga.	There is an expert craftsman in Puku-tahonga.
He kiakia no ta Puku-kiakia.	There is a *kiakia* bird on Puku-kiakia.

Present-day islanders still remember that the stone carvers were organized into a sort of guild. They were a privileged class, highly esteemed, and their profession was transmitted from father to son. To Geiseler (87, p. 13) and Thomson (215, p. 498) were pointed out natives who claimed to be the descendants of the image makers. They referred to their ancestors with as much pride as to the royal family. One of Thomson's guides "never missed an opportunity of stating that one of his forefathers was Uuratahui, the distinguished image maker."

Tepano told me that expert stone carvers (*tangata maori anga moai maea*) received orders from people who wanted a monument for their ahu. They worked under the leadership of a master (*tangata honui maori*) and were paid in fish, lobsters, and eels.

Expert fishermen were called *vaka-tangata* (people of the boat). They went fishing at the request of people who wanted fish.

RONGORONGO MEN

The sacred lore of Easter Island was stored in the memories of experts, called *tangata rongorongo*. Routledge (194, p. 244) is the first to apply this term to a special category of learned people. Present-day natives always speak of the chanters and learned men of the past as *tangata rongorongo*.

Thomson (215, p. 514) states that the knowledge of chants and of the so-called script associated with them was possessed only by members of the royal family, the chiefs of the six districts, the sons of the chiefs, and certain priests and teachers. There is little doubt that many experts belonged to aristocratic families. King Nga-ara, who was trained by his father, was one of the most famous *rongorongo* men of the nineteenth century. Other traditions, however, imply that chanters were numerous, and if this impression is correct, we may assume that nobility was not an absolute prerequisite for the profession. Probably on Easter Island as on Mangareva it was fitting for the king to possess the science of a priest, though it was not obligatory.

Little is known of the social functions of the *rongorongo* men. We know only that they taught chants in special schools, met once a year at Anakena to read the tablets, and gathered at Orongo during the annual competition of the bird-men (p. 390) where they "chanted all day; they stopped an hour to eat, that is all" (194, p. 260).

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OBSIDIAN SPEAR POINTS

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The points (*mataa*), made from obsidian of Mount Orito, are scattered all over the island and are the most common objects to be found, even after hundreds of specimens have been taken for various museums and private collections. The technique used in making these points can be deduced from the specimens themselves:

> With a stone hammer a massive flake was chipped away from one side of a thick obsidian plate. This was worked down to the desired shape by removing smaller flakes (143, p. 91). The tang was formed by careful flaking or chipping. One spearhead which I collected has the tang partly ground, suggesting that it was intended for something other than a spearhead.

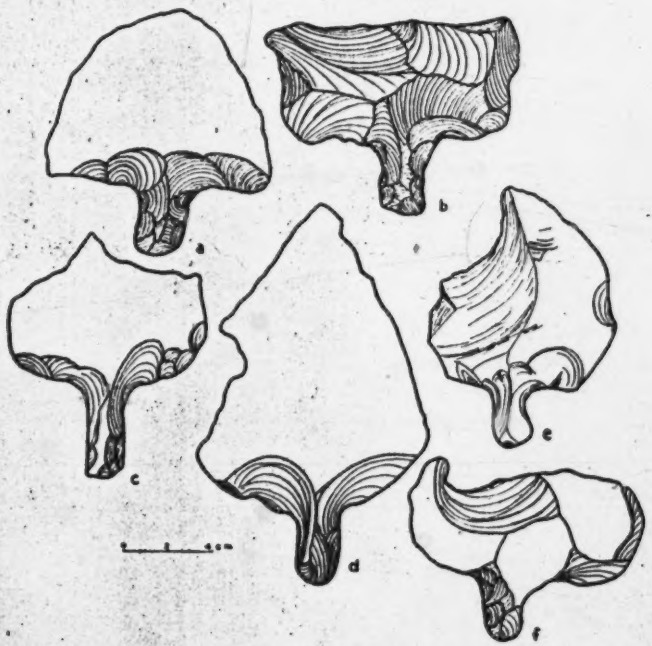

FIGURE 3.—Obsidian spear heads (*mataa*); *a-d, f*, B3481; e, 6715 (see ft. note 8 on page 167): *a*, type 1; *b*, type 2; *c*, type 3; *d*, type 4; *e*, type 5; *f*, type 6 (drawings made by H. D. Skinner).

Bishop Museum has a collection of 194 spear points which can be classified and 61 points either broken or too rough to be included in any series. Of a dozen average specimens which were weighed, the heaviest is 7 ounces

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and the lightest 2 ounces, the most usual being 4 ounces. In working over the Bishop Museum collection, Skinner (207) distinguished the following six types of points (fig. 3):

Type Number	Native Name	Number of specimens in Bishop Museum	Distinguishing characteristics
1	mataa rei-pure-rova, mataa arokiri	122	most easily made; cutting edge round in outline, blade resembles ace of spades without point
2	mataa hikuti-veva	11	straight cutting edge
3	not distinguished by name; similar to niho-mango (shark teeth)	4	central point emerging from tranverse cutting edge
4	mataa nutu-kutu (muta-kutu)	3	triangular, with no lateral wings
5	mataa-hae	30	roughly triangular with point to one side
6	mataa roa mataa haihaerue	24	most specialized type, cutting edge transverse, generally slanting and raised at one side to form lateral point

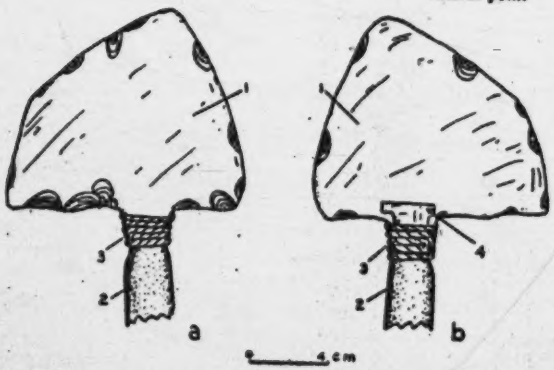

FIGURE 4.—Hafted spear (Mus. f. Völkerkunde, Vienna, 22752): *a*, front view, obsidian point (1) of type 5, 120 mm. wide by 105 mm. long, tang wrapped with white tapa cloth and lashed to shaft (2) by transverse turns of cord (3) evidently of foreign make; shaft of ti wood (?), 1482 mm. long, 28 mm. in diameter, and nicked along right side; *b*, back view showing end (4) of shaft cut away on both sides to leave lateral projections to prevent slipping back through lashing.

[1] Unless otherwise specified catalog numbers given in figure legends are those of the Bishop Museum collection.

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226 789 forms. Near ahu Mahatua is a stone covered with engraved vulvas (*komari*), called Pu-o-Hiro (Trumpet-of-Hiro) because of a natural hole which can be blown through like a trumpet. Legend says that it stood formerly in Hanga-roa and was brought to its present place by a raiding party of Tupa-hotu warriors. The shaking of this stone brought shoals of fish to the shore.

ANGLING

FISHHOOKS

227 Modern natives catch most of their fish by hook. Angling (*hi ite ika*) must always have been important, judging from the abundance of fishhooks which may still be discovered in the caves by the shore. The ancient fishhooks were of stone or bone, the latter being either simple or complex.

Legend says that the natives of ancient times used the thorns of the *ngaoho* (*Caesalpinia bonduc*) for making hooks, but the thorns are too small to have been put to any practical purpose. Composite wooden hooks were made for trade by some natives who asserted that they were authentic reproductions of old specimens.

One-piece Hooks

227 ● 324 [773] **Stone Hooks.** Stone hooks were always of the one-piece type, although the stone point of a fishhook (fig. 11, *a*) in the Bernice P. Bishop Museum collection seems to indicate that at least one element of composite fishhooks might have been of stone. According to an ancient myth, long ago the natives had only stone hooks, but the fish would never bite (*pakoo*) at them. Hook fishing proved successful only after the fishermen learned from Ure-a-vai-a-nuhe how to make fishhooks from the bones of the dead. (See p. 363). Had stone fishhooks been the valueless implements the myth indicates, the ancient fishermen would not have put so much work and time into their manufacture. The numerous unfinished stone fishhooks and fragments of finished specimens found on the island deny that they were exceptional and intended only for ceremonial purposes. The myth mentions the *kahi* (tuna) as the fish that could not be captured with stone hooks, but we may infer from the name of the stone hook, *mangai kahi* (215, p. 537), that it was made especially for catching the tuna. Either the name of the *kahi* has been introduced in the myth instead of that of some other fish that required a smaller bone hook, or the legend has arisen after the use of stone fishhooks was abandoned.

At the time of Palmer's visit in 1868, Easter Islanders no longer employed stone fishhooks, and perhaps had given up the use of bone hooks too, after becoming familiar with iron fishhooks. Palmer (171, p. 173) says: "They did not offer any fishing lines for sale, and the only hooks we saw

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were the large ones called *rou*, made of stone, and which were of some age, and scarce, about three inches across the head. They are not in use now."

Stone fishhooks[9] (*rou, mangai maea, mangai kahi*) are well represented in the collection of Bishop Museum by five whole specimens (fig. 7) and thirteen fragments. The pieces which illustrate the method of manufacture are particularly fine (fig. 8). During my stay on Easter Island I obtained only one stone hook with a broken point, and a number of fragments.

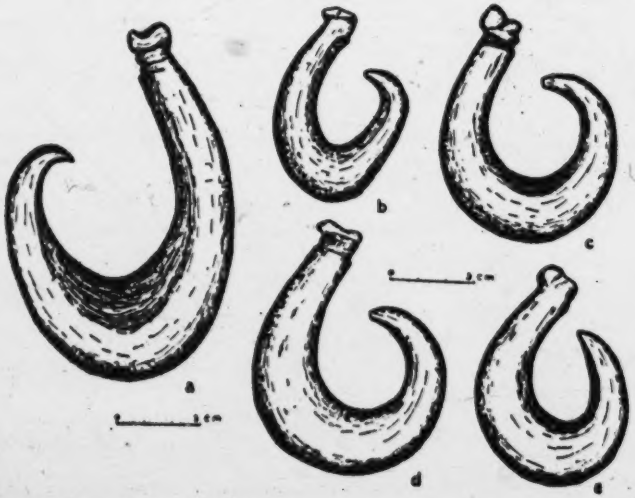

FIGURE 7.—One-piece stone fishhooks (B3540, measurements given in table 4): *a*, recess under knob 8 mm. wide with two notches on inner side to retain snood; *b*, knob projecting backward, oblique grooves on both sides to hold snood, recess under knob lined by small flange; *c*, knob divided by deep groove, posterior part projecting backward, anterior part with three distinct grooves; *d*, knob slightly concave on top (partly broken), well-marked recess under knob separated from shank by clear-cut flange; *e*, top of knob flat, posterior part polygonal, notching on back and front, no recess on sides.

[9] Easter Island stone fishhooks have been figured by Thomson (215, pl. 38, fig. 3), Beasley (14, pls. 89-91), Brown (27, pl. opposite p. 188, fig. 3), Shapiro (202), Chauvet (45, figs. 70-72), and Shottenberg (208, vol. 1, pl. 14, fig. 4).

Specimens of complete stone fishhooks are in the following museums and private collections: one in U. S. National Museum; one in the American Museum of Natural History; one in the Musée d'ethnographie du Trocadero; one complete specimen and many fragments in the Fuller collection, London; one in the collection of Dr. Stephen Chauvet, Paris; one in possession of J. Brown.

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TABLE 4. MEASUREMENTS OF STONE FISHHOOKS

Hook illustrated	Material	Total length	Width[a]	Thickness	Width of bend	Clearance between point and shank
7,*a*	gray, close-grained basalt	130 mm.	84 mm.	16 mm.	39 mm.	33 mm.
7,*b*	gray, close-grained basalt	71 mm.	50 mm.	12 mm.	21 mm.	12 mm.
7,*c*	gray, close-grained basalt	86 mm.	70 mm.	13 mm.		14 mm.
7,*d*	soft, fine-grained, disintegrated basalt of reddish color	90 mm.	75 mm.	13 mm.	27 mm.	16 mm.
7,*e*	soft, fine-grained basalt, gray with reddish tinges	80 mm.	66 mm.	14 mm.	23 mm.	9 mm.

[a] Width measured from outer edge of shank to outer edge of point limb.

The first stage in the manufacture of a stone hook is the choice of suitable material. The piece of basalt must be not only close-grained and free from flaws but, as far as possible, of convenient form and thickness to obviate the labor of reducing an unwieldy mass. The second stage consists in giving the stone the general outline of a hook, by coarse chipping followed by grinding. When the bulk of the material has been reduced, sometimes even before, the stone within the inner curve is removed by drilling a large hole through the stone and then enlarging it by drilling other holes on the border of the first (fig. 8, *d*). The holes are generally drilled from one side and then broken through from the other side when the hole is near completion. Thus the perforation is larger than it would be if the hole had been pierced from one side only. Judging from the shallow, wide depressions left on specimens in the first stage of drilling, the tool used has a broad working end. It is probably a drill of the general Polynesian type: a spindle with some sort of flywheel turned with a cord. Sand mixed with water is undoubtedly the grinding agent. In the specimens at hand, the upper diameter of the hole is between 19 mm. and 25 mm., but these figures do not give the exact size of the drill bit, since the unsteady movements of the drill tend to enlarge the hole. An unfinished fishhook that I procured on Easter Island was fashioned by drilling a cluster of small holes in the center (fig. 8, *g*). Simultaneous drilling and grinding of the stone explain why some unfinished hooks have the outside edges so perfectly shaped and worked.

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The pattern of the stone hooks is uniform throughout, the principal variations being in thickness at the bend and in the distance between the point and the shank. Most of the fishhooks have a continuous curve, but in one specimen (fig. 7, *b*) the limb from the bend to the point is almost straight. The shank is topped by a knob or projecting ridge with transverse grooves. A depression in the knob divides it into two unequal parts—one rounded, and the other small and sharp (fig. 7, *a*) which is generally toward the point. Below the ridge there is a recess, the inner margin of which is sometimes

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serrated. The knob so divided strongly resembles the outlines of birds' heads as represented on the tablets. 227 324

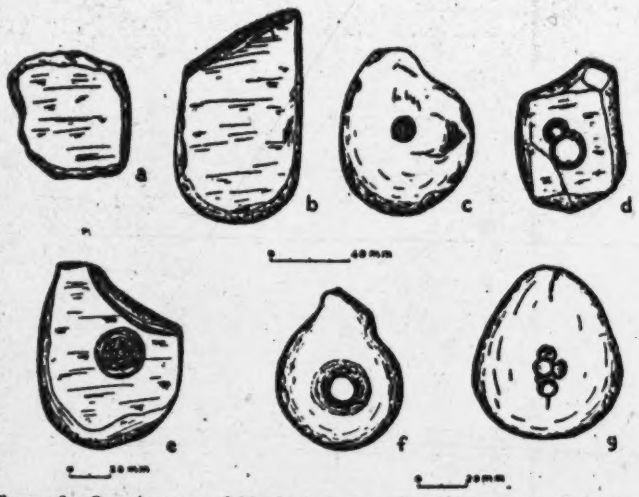

FIGURE 8.—One-piece stone fishhooks in process of manufacture (*a-e*, B3490): *a*, flat piece of stone coarsely chipped at edges into form of hook (72 mm. long, 63 mm. wide, 16 mm. maximum thickness); *b*, stone ground on both faces, sides superficially ground, bottom rim ground to sharp edge on each side (107 mm. long, 67 mm. wide, 17 mm. thick); *c*, slightly polished on both surfaces and edges, hole started on one side (82 mm. long, 70 mm. wide, 17 mm. thick); *d*, edges chipped, central hole drilled through, second hole started (76 mm. long, 54 mm. wide, 14 mm. thick); *e*, well ground on both surfaces and edges, upper slanting edge shows traces of chipping, central hole started (diameter of hole 25 mm., 91 mm. long, 71 mm. wide, 24 mm. thick); *f*, well ground, outline well defined, central hole drilled through (70 mm. long, 60 mm. wide, Trocadero Mus., Paris); *g*, carefully ground, several small holes drilled at center, upper end grooved (70 mm. long, 60 mm. wide, Trocadero Mus.).

Modern stone hooks. The present natives manifest an extraordinary skill in making stone hooks to be sold as curios, but instead of using, as in former days, a fine-grained stone they choose a soft basalt (phonolite or clinker stone) which they carve with metal instruments. In order to give the faked specimens the external appearance of old hooks, the texture of the stone is concealed under a thick layer of black paint. Such precaution is quite recent; the first faked specimens were unvarnished. The workmanship of these curios is remarkable and they might be mistaken for the genuine hooks if they were not thicker and sometimes of an inconvenient form for fishing. 324 439

In the Young collection there are three double hooks made of the same 227 324

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227 material as the modern forgeries. One of them has been figured by Beasley
● 324 (14, pl. 129)[11] as a ceremonial hook. There is no doubt that all these clumsy specimens are faked, but it is a matter of conjecture as to where the natives got the idea for making double hooks. No authentic double hooks are recorded and they were never mentioned as ornaments by the early voyagers. I am inclined to consider them modern products with no ethnological significance.

FIGURE 9.—One-piece bone fishhooks. *a-d*, V-shaped hooks with straight points (Trocadero Mus.): *a*, downward-slanting groove under knob, point slightly curved, 60 mm. long; *b*, shank tapering toward small knob, inside edge of bend sharp, 38 mm. long; *c*, knob lacking, snood held by two notches on back of shank, inside of bend shows traces of filing, 40 mm. long; *d*, short point widely diverging from shank, 25 mm. long. *e-g*, hooks with curved points: *e*, 18 mm. long (Trocadero Mus.); *f*, two notches on back of shank hold snood of 3-ply cord wrapped in tapa, 21 mm. long (B3525); *g*, modern hook of beef bone, knob divided like stone hook, point slightly twisted to side, 73 mm. long (B3525). *h-j*, barbed hooks (Trocadero Mus.): *h*, barb on shank almost touching point limb, possibly unfinished, 65 mm. long; *i*, 27 mm. long; *j*, double barb, 16 mm. long.

227 321 **Bone Hooks.** One-piece bone fishhooks (*mangai ivi*; very small ones, *piko*)[12] are found in most of the shore caves used by fishermen as shelters in the old days. These caves were also workshops, as signified by the number of bones and unfinished or broken hooks that may be gathered in them. Formerly the fishhooks were made of human bones, man being the only

[11] Other faked fishhooks have been reproduced by Beasley (14, pls. 91, 179, 181) and Chauvet (45, fig. 69).

[12] Bone hooks from Easter Island are reproduced by Thomson (215, pl. 18, figs. 1, 2); Beasley (14, pls. 88, 92, 94, fig. 21, *a*); and Brown (27, pl. opposite p. 188, fig. 14).

Bone fishhooks are in the U. S. National Museum, Washington, D. C.; the Musée d'ethnographie du Trocadéro, Paris; the Museum du Cinquantenaire, Bruxelles; the private collections of Beasley and Fuller, London; and in the collection of Stephan Chauvet, Paris.

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net is 75 feet long and 12 feet 10 inches broad. It is tied at each end to the top of a pole, probably of *hau* wood (*Triumfetta semitriloba*) 6 feet 10 inches long. A strong cord of hemp, probably of European manufacture, extends along the edges of the net. To this cord at the upper edge of the net are fastened 12 floats (*uto*) of *hau* wood 24 inches long. These are attached approximately every 6 feet to the suspension rope by strings tied through holes in the upper ends of the floats. The middle float was called *pito-o-te-kupenga* (the-navel-of-the-net). The lower edge of the net is weighted by 13 stones wrapped in banana tree bark and tied to the edging cord. These sinkers (*kaka*) weigh 196 grams and have an average length of 5 feet. When a shoal of fish was sighted, the two poles were stuck in the sand and the fish were driven toward the net.

Geiseler (87, p. 37) mentions a net 200 feet long but this is probably exaggerated.

The *kupenga viri* (*viri*, to roll) was identical to the *kupenga maito* and was generally used at night.

The *kupenga matiro* had smaller meshes than those of the *kupenga maito* but the principle of the net was the same. It was used to catch *matiro*, a leaping fish.

The *kupenga ihe* was used to catch *ihe* (needle fish). It was the same type as the *kupenga maito* but was larger and had smaller meshes. It was carried to its place by several swimmers.

CASTING NETS

Though casting nets were not enumerated by my informants, they were seen by Thomson (215, p. 460): "Their light casting nets were used with great dexterity as they waded along the beach, and when a shoal of small fish appeared, the net was thrown with the right hand."

TURTLE NETS

For a great many years no turtles (*honu*, *kepukepu*) have been seen off the shores of Easter Island. The natives explain their disappearance by the passing of the kings (p. 133). Island folklore has many stories about turtles, and numerous petroglyphs represent them. Turtle shells which were worn as ornaments have been found in caves and graves.

My informant says that when turtles were seen, natives jumped into their canoes and went to meet them. They dived near the turtles and drove them into a special net (*kupenga honu*), similar to the *kupenga matiro* but with wider meshes and stronger ropes.

SINKERS

Twelve net sinkers are preserved in the Bishop Museum collection. Four have an artificial perforation, and the others are basalt rocks with a natural hole (fig. 13, *a*).

Of the four stones intentionally perforated, two are nearly flat with holes near one edge like the net weights of Tahiti (fig. 13, *c*). The remaining two belong to a widespread Polynesian type which, in its most characteristic form, is a sphere with a perforated projection at the top. In the same collection, a stone disc with a central hole (B2614) may well have been a sinker.

Three small oval stones weighing about ½ ounce each (fig. 13, *c-d*) are grooved for attachment of a cord. They are labeled in Young's catalog as "*atua mangaro*, fetish stones used by *tulunga* (sorcerers)." The natives identified them as ear pendants to increase their commercial value; they emphatically denied my suggestion that the

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227 stones might have been line sinkers. However, the frequency with which such pieces
324 are discovered in fishermen's caves along the shore suggests that they had something to do with fishing, either as line sinkers or net sinkers. The lightness of these stone sinkers cannot be regarded as a serious argument against their practical use.

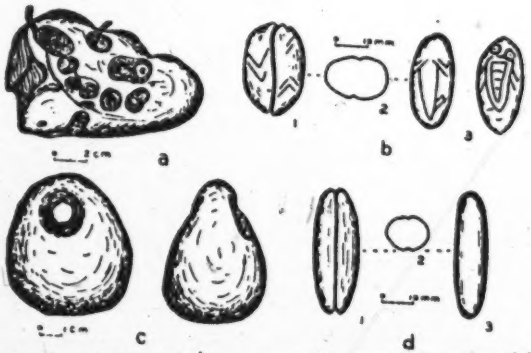

FIGURE 13.—Stone fishnet sinkers: *a*, stone with natural hole used as sinker, 141 mm. long, weight 33 oz. (B3513); *b*, small stone sinker for net or line: 1, lateral view; 2, cross section, 3, front and back views showing incised animal figure, probably a fish or a lizard, 28 mm. long, 20 mm. wide, weight 2/3 oz. (B3557); *c*, biconical hole perforated near top, coarse-grained basalt, 70 mm. high, greatest width 61 mm., 51 mm. thick, weight 10 oz. (B3564); *d*, small stone sinker for net or line: 1, lateral view; 2, cross section; 3, front view, 38 mm. long, 14 mm. wide, weight 1/2 oz. (B3557).

COMPARISON WITH OTHER POLYNESIAN FISHNETS

227 A comparative analysis of Easter Island nets is almost impossible. With
171 few exceptions they are known only through second-hand descriptions. Also the types of nets have been studied in only a few Polynesian islands, and many of the descriptions are too general to be utilized for comparative purposes.

Scoop nets are general in Polynesia, but nowhere did I find reference to the bow-shaped frame of Easter Island.

Bag nets were used in New Zealand for catching crayfish, and, as on Easter Island, the bait was attached above the hoop. Grooved stones were used as sinkers on these Maori nets. The sinkers were sometimes enclosed in a small net to prevent their being lost. The large bag nets of Easter Island (*kupenga ature* or *koreva*) probably resembled the Maori bag nets for catching *maomao* (32, pp. 626-634). Bag nets have been described for the Marquesas (142, p. 400), the Society Islands (103, p. 88), Manihiki and Rakahanga (29, p. 163), and Tongareva (30, p. 201). In the Bishop Museum collection there is a large bag net from Hawaii which suggests Easter Island *kupenga ature* nets.

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532 Native visitors to Rano-raraku have incised on several statues the big-eyed symbol and a mysterious pear-shaped sign that occurs on the tuff walls. A frigate bird is carved near a large statue lying in an artificial cave.

The discovery of so many petroglyphs on the island is of theoretical interest. The style of these designs resembles that of the symbols on the wooden tablets. They show the same skill, the same conventions, and the same remarkable vigor and elegance in tracing the outlines. Some petroglyphs, particularly one representing an octopus with a human head, prove the existence on Easter Island of a fully developed tradition of design.

PAINTINGS

The slabs lining the interior of the stone houses of Orongo were decorated with paintings. Most of these slabs have been removed in the past fifty years and a few have fortunately been preserved in European museums. The colors on those which remain in place have almost faded away. We could identify only one design, representing the big-eyed god outlined in red and black on a white background. The pigments used for paintings were a red and a white ochre and a dark substance, perhaps charcoal.

Several paintings at Orongo, copied by Geiseler in 1884 (87, pls. 7, 8, 12-16), represent dancing paddles (*ao*) with a conventionalized human face, the big-eyed god with a schematic arrangement of the organs of the face, and bird-man facing each other. A favorite motif is the design of European ships under full sail, indicating that the traditional art was still flourishing at the beginning of the nineteenth century.

The paintings were generally placed on the wall opposite the low, narrow entrance to the house so that they might be illuminated by a little light and could be enjoyed by those who lived in the house. Birds and ships were also painted on the walls in the cave Ana-kai-tangata but have been destroyed recently. One of these birds has been drawn over the design of a European ship (194, fig. 102; 123, figs. 1, 3).

STONEWORK

STONE IMPLEMENTS

Adzes

412 The crudity of Easter Island adzes (*toki*) makes their classification difficult. In Bernice P. Bishop Museum, there are 113 adzes and adz fragments ●324 which are classified under two main types, with many slight variations due to the form or the quality of the stone. None of the Easter Island adzes seen is tanged, unless the groove, characteristic of some adzes of type 2, is to be considered an incipient tang.

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Easter Islanders showed me the quarry where all the stone adzes are said to have been made. It lies half a mile from La Pérouse Bay on the trail to Vai-tea. There are blocks of basalt (*maea-toʻki*, stone-for-adzes) which have been split and broken, and the ground is covered with flakes.

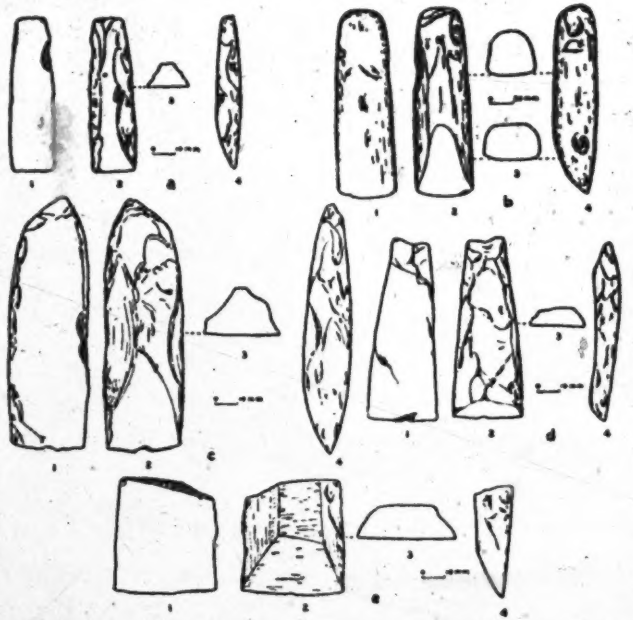

FIGURE 46.—Adzes of type 1 (1, front; 2 back; 3, cross section; 4, side): *a*, roughly chipped, front edges distinct, bevel well ground, 70 mm. long, 23 mm. wide, 13 mm. long (B3843a); *b*, variant with rounded edges, well ground and polished on front, poll surface pecked, triangular bevel merging into back, sections irregular, trapezoidal, 168 mm. long, 52 mm. wide, 42 mm. thick, weight 22 oz. (3590b); *c*, coarsely chipped with long flakes, some protruding edges ground, 111 mm. long, 36 mm. wide, 24 mm. thick (B3483); *d*, chipped, protruding parts ground, short, well-ground bevel with chin, 81 mm. long, 30 mm. wide, 11 mm. thick (B3483); *e*, fragment, well ground, flat surfaces, straight edges, 54 mm. long, 46 mm. wide, 20 mm. thick (B13590).

TYPE 1

All the small and many medium-sized adzes in Bishop Museum (59 in all) belong to type 1 (fig. 46), the characteristics of which are as follows:

The cross section is roughly quadrangular although most adzes are not ground on the sides and on the back. The greatest width from side to side is just above the cutting edge on the front, from which point the adz narrows toward the poll. The front is slightly

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convex longitudinally and generally flat transversely. Only a half or a third of the front surface is well ground, but there are a few specimens which are ground from the edge to the poll.

The sides slope toward the back and are coarsely chipped. On a few specimens the sides are slightly ground. The front edges are generally well marked, although they are irregular in many adzes and rounded in some (fig. 46, *b*). The sides and back are roughly shaped in most specimens, for grinding is rare and only partial. Consequently there are no longitudinal back edges. The bevel is the only well ground surface. In some specimens it tends to be triangular but in most adzes the chin is irregular owing to the unground back. Sometimes the chin is ground off. Bishop Museum has fragments of three adzes (B3590a; B3542c, d) which are exceptionally well ground on front, back, and sides (fig. 46, *e*).

Some adzes (B3590a, b, c; B3600a) differ slightly from the type in having markedly round edges (fig. 46, *b*).

Most small adzes of type 1 are made of black, fine-grained basalt.

TYPE 2

Type 2 is the most characteristic of Easter Island adzes. It is represented in the Bishop Museum collection by 29 specimens, of which 13 are fragmentary (fig. 47).

Specimens of this type are rounded in cross section and vary from 135 mm. to 250 mm. long. The front is ground from the edge toward the butt, but the extension of the ground surface toward the poll varies considerably. A groove pecked across the front, slightly below the poll, is present in nine specimens of the collection.

The front surfaces of many adzes of type 2 are convex and have a marked backward slope at the butt. In a few specimens the front surface of the blade is nearly straight. The back is more or less straight longitudinally and flat or slightly convex transversely. In one specimen the butt slopes backward at the poll, making the back slightly concave longitudinally. The sides are curved and there are distinct edges on the back in only a few specimens. The bevel surface is quadrangular and merges into the surface of the back.

Four specimens of type 2 have a narrow cutting edge and consequently almost triangular cross section (fig. 47, *a*). These are a variation of type 2 and not a special type. These four adzes are very thick from front to back as compared with their width from side to side.

A narrow front, a more or less rounded back, and great thickness from front to back characterize one adz (B3605a), but it is exceptionally large, being 330 mm. long, 94 mm. from front to back, and 83 mm. from side to side. It is unfinished and has been only roughly chipped.

The blades of four small, broken adzes (C3927, 3943, 3542, 3607) are well finished and the edges of front and back are well defined (fig. 47, *b*). The front, sides, and bevel are well ground. The adzes were probably used in reducing a surface by furrowing, removing the ridges between with a broad adz.

In most of the specimens the cutting edge is so narrow and so blunt that the carving of wood or felling of trees with it appears impossible. It must be concluded that these adzes were used in finishing the large stone statues or the slabs of the ahus. Moreover, there were no trees on the island large enough to justify the size of these implements. The rounded form of these adzes suggests that they were not hafted but were seized in the hand. The groove on some adzes of this type is too narrow to hold a lashing but gives a good grip to the hand. Suitable shafts for big adzes must have been difficult to find for wood was scarce and natives probably resorted to implements that could be used without a handle. The picks with which they dug and carved the tuff of Rano-raraku were grasped by the hand like the prehistoric hand-axes or *coups de poing*.

1: Metraux E-5 (1934-1935) 1940
OY2 Easter Islanders OY2

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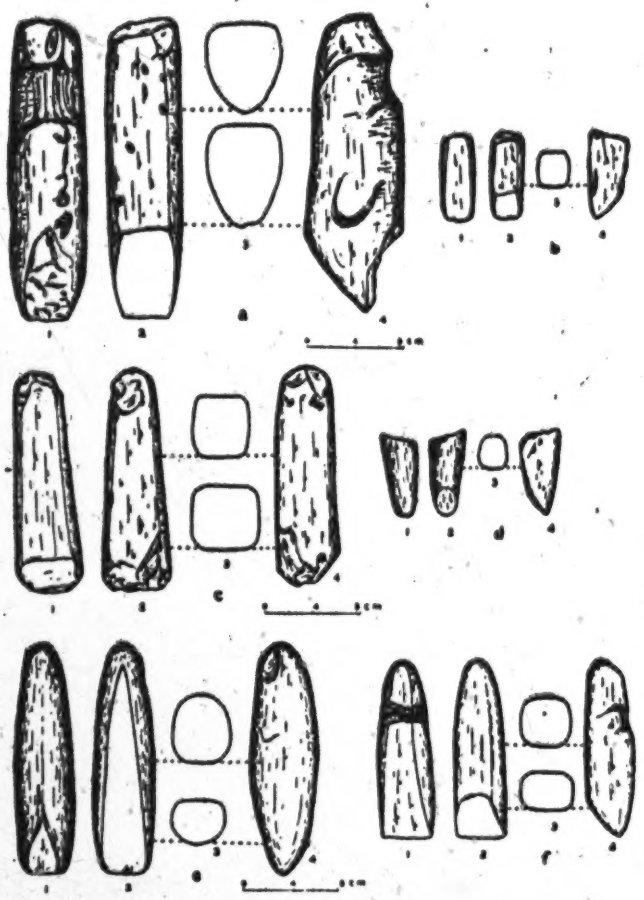

FIGURE 47.—Adzes of type 2 (1, front; 2, back; 3, cross sections; 4, side): *a*, partially ground, narrow cutting edge, 247 mm. long, 63 mm. wide, 84 mm. thick, weight 4 lbs. 6 oz. (B3594); *b*, thick, narrow, sides only partly ground along front edge, 73 mm. long, 28 mm. wide, 31 mm. thick (C3937); *c*, hand ax or chisel, 185 mm. long, 57 mm. wide, 52 mm. thick, weight 37 oz. (B3608); *d*, rounded, cutting edge narrow, 72 mm. long, 27 mm. wide, 32 mm. thick (B3542a); *e*, ground, bevel long, narrowing toward butt and forming edges with sides which continue convexity of front, 32 mm. long, 49 mm. wide, 54 mm. thick, weight 29 oz. (3899a); *f*, front almost flat transversely, distinct edges, transverse groove pecked at two thirds the distance from cutting edge to rounded poll, 148 mm. long, 44 mm. wide, 44 mm. thick (C8367).

1: Metraux E-5 (1934-1935) 1940
OY2 Easter Islanders OY2

UNCLASSIFIED ADZES

Some specimens in the Bishop Museum collection cannot be included in either of the two types just defined. However, they are too few and too crudely made to be considered as a special type.

Two adzes (C3949, B3600) are decidedly triangular, but they are only chipped, with no trace of grinding. As they are unfinished, their shape cannot be considered distinctive. Had they been ground they would have belonged to type 1.

The adz in figure 47, *c* is characterized by its square cross section and by the more or less equal width of its four surfaces, which are well ground.

In the entire collection there are only three small adzes with a more or less circular cross section (B3542a, C3906, C3950). (See fig. 47, *d*.) Two are broken and, though small, may be included in type 2.

MODERN IMITATIONS OF OLD ADZES

When Easter Islanders discovered the commercial value of the implements left by their ancestors, they increased their supplies of antiques by faking specimens. In the Young collection I picked out 29 adzes which were obviously counterfeit. The bevel of modern adzes is ground on both sides as in European tools and the surface of the bevel is too even to have been obtained by ancient methods. The imitators apparently selected thin plates of stone with the general adz shape when that was possible.

The natives no longer make adzes. However, I was presented with a stone knife of the same material as that used in the old adzes, and I was later told that it had been made during our stay.

HAFTING

In the Bishop Museum collection there are hafts of two adzes from Easter Island (fig. 48, *a-b*). Their form corresponds to that of one hafted adz collected by Thomson (215, pl. 57). Easter Island adz hafts have several distinctive characteristics:

The shaft is continued to meet the front of the foot, as there is no projecting heel. The front of the toe which supports the adz is flat; the back and the sides are convex.

An Easter Island shaft collected by Thomson (Nat. Mus. 129734) has a heel with a longitudinal depression on its upper surface in which the stone blade was embedded (fig. 48, *c*). Another hafted adz in the same collection resembles those in figure 48.

COMPARISONS WITH OTHER POLYNESIAN ADZES

Comparative study shows that Easter Island adzes are connected with those of the rest of Polynesia. Type 1 is widespread and probably ancient; type 2 was developed locally, though it resembles adzes of New Zealand and the Chatham Islands.

Tangless adzes are found almost everywhere in Polynesia. However, the tanged adz has been adopted throughout central and marginal Polynesia, with the significant exceptions of Mangareva and Easter Island (35). It would seem, therefore, that the Easter Islanders broke away from the rest of Polynesia before the specialization of the adz took place. The adzes of western

1: Metraux E-5 (1934-1935) 1940
OY2 Easter Islanders OY2

412 171 polished, more slender, and their general style is little reminiscent of that of Easter Island adzes.

The resemblance between several thick, heavy adzes from New Zealand (22, pl. 9) and the Easter Island specimens is so striking that it would be difficult to distinguish between them if they were placed together unlabeled. The New Zealand adzes, however, are a little more quadrangular in cross section. Some Moriori adzes and chisels (206, pl. 24, *a-c*; pl. 25, *h-o*) can be compared to some varieties of our type 2. The Moriori specimens have a distinctly round cross section, but some of them might have been chisels.

A few Easter Island adzes of type 2 tend to have a triangular cross section, the apex of the triangle comprising the front. Although this type is rare and ill-defined, it shows a remote relationship between the Easter Island adzes and the triangular adzes (*toki kouma*) of New Zealand, Mangareva, the Tuamotus, Tahiti, and the Marquesas.

The groove on the Easter Island adz is a local feature. In other regions (Rapa, New Zealand, Chatham Islands) some adzes have a tang which might have developed from a groove as evidenced by the presence of a knob on the poll. This knob gives to some tangs the appearance of a long groove.

Chisels

324 412 Distinction between adzes and chisels is based more on function than on form. The adz was used with a swinging blow and was hafted on a knee-shaped shaft, whereas the chisel was driven by direct pressure of hand and arm or by mallet blows and was hafted axially. Only one hafted chisel from Easter Island has been preserved (fig. 49, *a*). The label gives this specimen the native name *kau toki* or *tingi* (strike).

A fragment of a stone tool (Bishop Mus. B3542) has such a curved cutting edge that it is nearly a gouge but the thickness (32 mm.) of the tool makes it more like the adzes of type 2 than like a chisel. Another fragment (Bishop Mus. B3541f) which has been sharpened by grinding on both faces is probably a chisel.

Modern Easter Islanders consider that all small adzes were used to carve the eyes of stone statues. They term *tingi* all specimens they believe to have been chisels. They haft European chisels as they did the old stone adzes, but they also employ chisels with a wooden mallet when carving wooden images. The favorite stone for chisels was an olivine andesite from Mount Otu.

Picks

Hundreds of picks with which the giant statues were carved are found in the ancient quarry on the slope of Rano-raraku. They are large, roughly chipped stones of the same nature as the lapilli in the tuff. They are generally

1: Metraux E-5 (1934-1935) 1940
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amygdaloid in form and sharpened at both ends. Some specimens have somewhat rounded ends. It is highly improbable that they were hafted. All the specimens I examined were handy, although somewhat heavy. The volcanic tuff of which the statues were made is easily worked with such picks. Bishop Museum has only one pick from the quarry of Rano-raraku, but it is typical (fig. 49, *b*).

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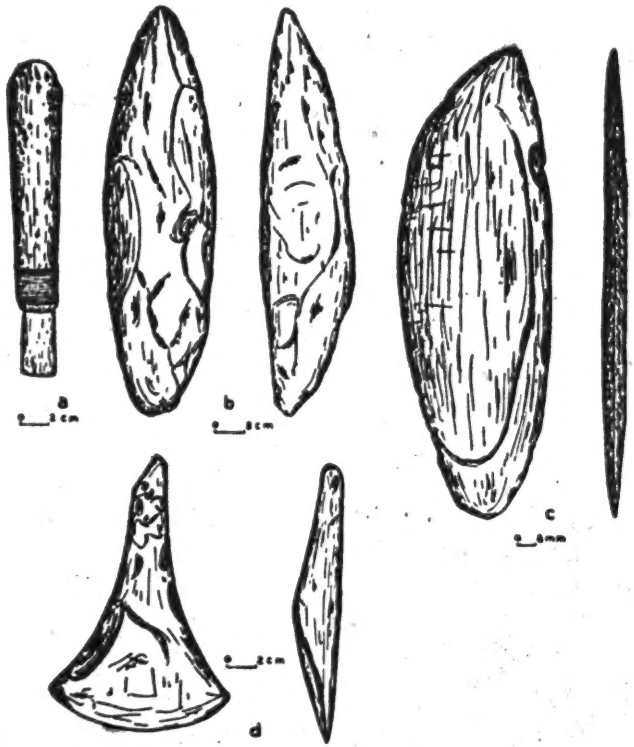

FIGURE 49.—Stone implements: *a*, hafted chisel found in tomb and obtained by Giglioli from Salmon in 1883, handle rough light *hau* wood, 173 mm. long, lashing of twisted *hau* bark, chisel faces straight, bevel approximately same on each side, blade 50 mm. long (Mus. Pigorini, Rome, 949); *b*, roughly chipped stone pick used to carve stone images, sharpened at each end, 271 mm. long, 75 mm. wide, 62 mm. thick (B3597); *c*, stone knife, front curved, back flat, straight edge ground on both sides, slightly polished, 209 mm. long, 67 mm. wide (B3542); *d*, cutting implement, blade ground smooth, bevel merges into blade, 179 mm. long, 116 mm. wide, 20 mm. thick (B3483).

1: Metraux E-5 (1934-1935) 1940
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Knives

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Stone knives are frequently found on Easter Island, and natives are so well acquainted with their form that they make beautiful imitations of the same material—thin plates of basalt which are found on the surface of the ground and are easily adapted to the desired form.

The knives have a semicircular back and a long, straight cutting edge, which is usually raised at the end and terminates in a point (fig. 49, *c*). Usually one edge only is sharpened but in some specimens the curved as well as the straight rim has been ground into a cutting edge.

The cutting instrument shown in figure 49, *d*, and also Bishop Museum specimen no. B3591 are exceptional types. However, their perfect workmanship suggests that they are genuine. Their form is somewhat similar to the obsidian chisels or planes, but they are less sharp. They may have been used for wood carving, though they seem to be too thin for that purpose. Perhaps they were a specialized form of knife for cutting meat or other soft substances. The best specimen (fig. 49, *d*) has a conical handle produced by chipping and smoothed by polishing. The cutting edge is semicircular and sharpened by grinding. There is no trace of a bevel edge; one surface is flat and ground smooth. The other specimen is cruder. The handle has been chipped on the edges and slightly ground. The bevel is ground on both sides. In the National Museum at Washington there is a similar specimen collected by Thomson.

Obsidian Tools

Obsidian (*mataa*), of which spear heads and tools were made, comes from Mount Orito near Rano-raraku. The lower part of the hill is composed of

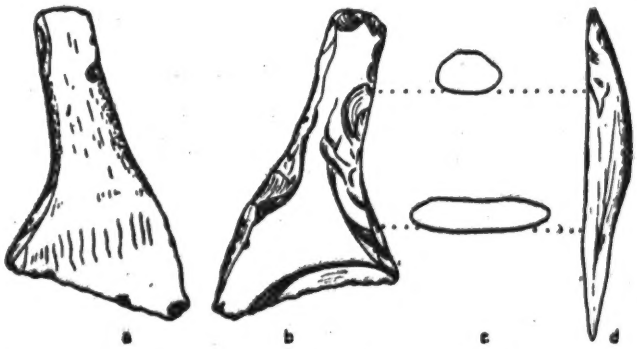

Figure 49A.—Obsidian tool (Bishop Mus. B3481): *a*, *b*, opposite surfaces; *c*, cross sections; *d*, side view.

sheets of obsidian and at the foot of the hill is a series of pits from which the material was formerly extracted. Thick layers of flakes surrounding the ancient pits indicate that the raw material was worked there. Among these

1: Metraux E-5 (1934-1935) 1940
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fragments I found some hammers which were used in chipping flakes. They were waterworn boulders of more or less oval shape. The narrowest end always showed traces of usage. One stone in Bishop Museum (B3493) has exactly the same shape as these hammers and was probably found at the same place. It is 193 mm. long and 69 mm. wide.

Obsidian wood-working tools are recorded by Palmer (171, p. 171): "[The natives] were very dexterous . . . carving both wood and stone; chips of obsidian are used for the former material, instead of chisels; they used obsidian flakes for razors and for their javelin head." Most obsidian tools are probably chisels or planes for wood carving. Some of them look like broken spear heads but many details preclude the possibility that they are fragments of ordinary *mataa*. (See figure 49A.)

Obsidian flakes nicely retouched on the borders may have been used for incising wood carvings or tablets, and a few may have been drill points. Some have a narrow edge but others have a sharp point. Their form is closely related to the small flint or quartz points that the Maoris attached to the spindles of their drills. One side is carefully retouched by fine chipping. These implements measure from 40 to 55 mm. (See figure 49B.)

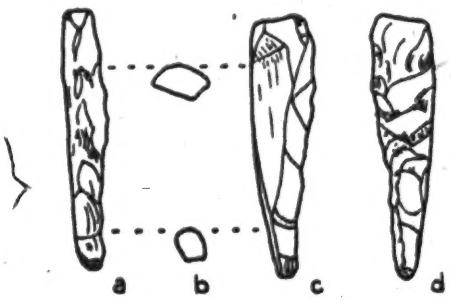

FIGURE 49B.—Obsidian drill or carving tool: *a*, side view; *b*, cross section; *c-d*, opposite sides.

IMPLEMENT OF UNKNOWN USE

In the Bishop Museum collection is what looks like an enlarged obsidian spear head but the tang is of such a length and thickness that it forms an effective hand grasp (fig. 50). It is much heavier than the spear heads and its long curved edge renders it suitable as a cutting implement. It could have been used as a hand weapon or as an implement for cutting up large fish or human flesh.

1: Metraux E-5 (1934-1935) 1940
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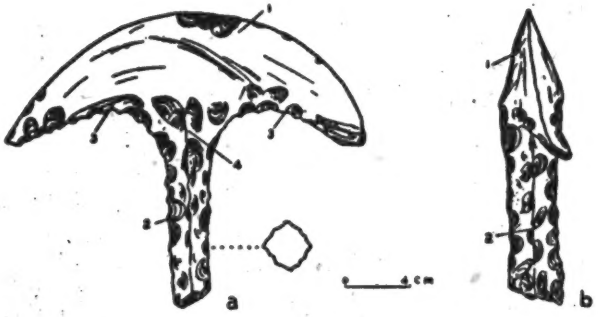

FIGURE 50.—Crescentic implement with prolonged tang (B2195): *a*, front view, crescentic blade (1) 221 mm. wide; greatest thickness in middle line 34 mm.; distal, convex edge sharp throughout, formed by meeting of two inclined planes without secondary chipping; proximal concave edges (3, 3) formed by chipping from both surfaces and leaving median longitudinal edges; tang (2) formed by chipping outward from the middle line from either surface, thus resulting in median longitudinal edges in front and back and also at two sides; width of tang (at point 4) 48 mm., and thickness 33 mm.; width at proximal end 24 mm., and thickness 29 mm.; length of tang (from point 4) 101 mm. *b*, side view, showing sharp edge of blade (1) and thickness of tang (2).

RUBBING STONES

Three stone discs are listed in the Bishop Museum catalog (B3615) as "polishers." A close examination of these disks shows that one or both of their plane surfaces have been rubbed against a hard substance, but this is the only hint as to their former use. The three specimens have almost the same diameter (900 mm.) and two of them the same thickness (45 mm.). The texture of two of these stones indicates that they might have had sufficient abrasive effect for wood working, but the third, a waterworn pebble, is so smooth and of such fine grain that it might have been a burnisher employed to give a final polish to wooden implements.

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Although these discs are probably polishers, they may be bowling stones similar to those found in Hawaii and New Zealand. Geiseler (87, p. 52) collected stones which were employed in a game and about which he says: "Throwing stone. Name: *mai hekupenga*. It was rolled in a game and was often decorated outside."

A quadrangular piece of pumiceous basalt (Bishop Mus. B3546) designated in the catalog as a "god" seems to have been a polisher. One surface is slightly concave and shows traces of rubbing.

The large slabs on the ahus and the curbs in the foundations of the houses could not have been dressed without some kind of rubbing stones. In the

1: Metraux E-5 (1934-1935) 1940
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Young collection there is a lump of coral which would have served this purpose. Unfortunately the origin of the specimen is uncertain. 324 412

One piece of basalt (Bishop Mus. B3553) has parallel grooves on both sides. Judging from the V-shaped cross sections of the grooves this stone must have been used for grinding the cutting edges of sharp instruments, probably knives or small adzes.

Comparisons with Other Polynesian Cutting Implements

The tanged knives of Easter Island resemble slightly a Moriori flint knife (206, pl. 26, *d*), though the Moriori specimen is cruder. An obsidian knife which is quite similar to the Easter Island spear heads and stone knives with a long cutting edge and a rudimentary tang have been found in the Chatham Islands (206, pl. 26, *g*, *e*). Bennett (19, pp. 63-64) describes a few stone knives found on Kauai in the Hawaiian islands. They are somewhat like Easter Island knives but are far more crude, and lack the semicircular cutting edge characteristic of Easter Island specimens. The stone knife in Polynesia seems to be a culture trait without significance for comparative purposes. 412 171

SANCTUARIES

The funerary cairns or ahus of various descriptions that extend along the coast in an almost continuous succession were probably the sanctuaries of the Easter Islanders corresponding to the maraes of central Polynesia. These structures, which have been used until recently as burial vaults, are associated in the memory of the natives with religious feasts; it was probable only after the introduction of Christianity that their former sacred function was forgotten. Like the maraes each ahu belonged to a distinct lineage. There is still a dim recollection of the ties uniting certain families to specific ahus. In this respect the analogy with central Polynesia is so striking that there is little doubt that the ahu is the equivalent of the marae. 346 778

The study of the ahus constitutes the most important and complex division of Easter Island archaeology. I have published elsewhere a general survey (153) and Dr. Henri Lavachery is preparing a detailed discussion of the ahus, based on his field work. Here it is sufficient to give a general account of their main features.

Ahus are the most common monuments on the island and give it much of its individuality. Most of them are located near the shore, and except on the barren headland of Poike and the steep cliffs of the southwest point, form an almost unbroken line along the coast. They are most numerous around coves and other particularly habitable spots and are generally associated with house foundations. Many ahus have been destroyed and the names of others forgotten. Yet Routledge (194, p. 166) estimated that there were 260 ahus on

1: Metraux E-5 (1934-1935) 1940
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STONE MASONRY

324 333 Cut stones were used extensively on Easter Island. Dressed slabs or blocks are found on most of the big ahus and appear in structures such as wells and underground houses, and in the stone houses of Orongo. Worked curbs, taken from the foundations of thatched huts, were often incorporated into the facings of ahus and wells (pl. 1, *C*).

171 324 333 Apart from Easter Island, there are only three regions in Polynesia where stone cutting was well developed—the Marquesas, the Society Islands, and Tonga. In Tonga the material employed was easily worked limestone (147, p. 5); in the Marquesas, coarse-grained tuff (141, p. 8); and in the Society Islands limestone or tuff blocks and occasionally basalt (77, p. 5). The excellence of Easter Island stone work is due partly to the use of hard vesicular basalt. Though cut stones were not so common on Easter Island as in the Marquesas, they show a more elaborate technique.

The presence of dressed stone masonry in Polynesia has been cited as evidence of foreign contact or of two distinct migrations of people. However, examples of such work are scattered and show no uniform specialization. Generally the dressed slabs are merely trimmed at the edges and smoothed on the face. This is a simple technique which might easily be invented and applied locally. Stimulus for the cutting of stones was the desire to improve upon the slabs so abundantly provided by nature in most Polynesian islands. The lava dikes, the tuff deposits, or the limestone strata, found on the surface of the ground, were ready to be quarried and broken into rectangular slabs.

The facings of a few Easter Island ahus are among the most perfect masonry work in Polynesia. The slabs or blocks have not only been smoothed to evenness, but they have been dressed or selected so as to fit exactly (fig. 52; pl. 4, *A*). The masterpiece of Easter Island stone work is the ahu Vinapu (pl. 7, *B*):

> The seaward wall is made of two rows of marvelously smooth slabs whose edges join with mathematical accuracy. The corner slabs have been rounded. A hole in the face has been patched with a stone carved to fit perfectly. Such a facing resembles the famous walls of the Inca palaces of the Cuzco. Historical connections have been proposed to account for this similarity. However, it must be remembered that ahu Vinapu is unique on Easter Island—an extraordinary achievement carrying to the height of perfection a few simple techniques, applied with less skill in other monuments. Between the Easter Island monuments and the great buildings of Peru the similarity does not go beyond the exact fitting of the stones. The plan and the structure of the Inca ruins are entirely different. There is neither geographical nor chronological link between the two cultures. The wonderful stone constructions of the Peruvians lie in the valleys of inner Peru or on the highland of Bolivia, and are separated from the sea by mountains and hundreds of miles of land. If there had been a historical connection between Easter Island and the interior of Peru, surely there would have been more evidence of the contact than a simple and obvious device of masonry.

1: Metraux E-5 (1934-1935) 1940
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Exact joining of masonry by means of jogs was practiced in other parts of Polynesia, for instance in the facing of a marae on Meetia, near Tahiti (77, p. 118), in the construction of an irrigation ditch on Kauai, Hawaiian islands (19, pp. 105-106), and in the village of Kailua on Hawaii (72, p. 47). However, this scarfing technique was too exceptional to be considered a special culture trait scattered by migrations. It must have been developed locally by patient stone cutters.

The Easter Island retaining or facing walls, made of vertical slabs planted on end and capped with horizontally laid slabs, have a close affinity with several maraes in the leeward Society Islands and with a heiau on the island of Nihoa in the Hawaiian group (72, p. 46). Similar construction was used in the facing of large Mangarevan maraes, in the Tuamotus, in Tongareva (30, fig. 40, *b*), and in the Marquesas where the tops of many slab walls are finished with one or more courses of water-worn boulders (141, p. 12).

STONE IMAGES

The Quarry

The quarry of the giant statues on the slopes of Rano-raraku crater is one of the most spectacular places on the island. The fame of Easter Island rests mainly on the amazement produced by this quarry and by the unfinished statues in it. Routledge (194, pp. 175-199) devoted most of her time on the island to a study of this quarry and, with the help of Lieutenant Ritchie, made a complete and accurate survey of the site.

Almost all the statues standing on ahus came from Rano-raraku. The only exceptions are: the stone image taken from Orongo and now in the British Museum; the image Pou-hakanonga, from the ahu Ana-koiroroa, which is now in the Musée du Cinquantenaire, Brussels; another basaltic statue at Puna-marengo; and seven or eight statues of the ahu on the headland of Poike which were carved from a local soft rock.

The Rano-raraku was chosen as a quarry because of the suitable quality of the rock. The volcanic cone, situated on the south coast not far from Poike, is composed of bedded ashes derived from the crater. The southern slope of the exterior of the volcano and the southern and southeastern sides of the interior were quarried, probably because the rock was most easily reached there.

The quarries on the southern outer slope of the volcano begin about 50 or 60 meters above the foot of the hill. There the tuff crops out between vertical fissures 10 to 20 meters long. The ledges produced by these depressions differ in width and are responsible for the positions and sizes of some of the unfinished statues. The carvers often had to climb steep walls to reach the portion of rock on which they were working.

6: Anonymous T-5 (1770)1908
OY2 Easter Islanders OY2

seen in it. Even the marine species do not settle on its shores nor fly within sight of it: the same is the case with regard to beetles, insects, &c.

Most of the natives of the island dwell in underground caves, or in the hollow of some rock, the entrances to which are so narrow and inconvenient that I have seen some of them introduce themselves in the opposite manner to what is natural, beginning by projecting their feet and the head last. The more polished or powerful persons, whether in virtue of their age or of authority, are held in esteem. These inhabit small huts covered with reeds [*totora*], and constructed in the form of a large tunnel, in whose bilge or bellying portion [*vientre ò bariga*] is the entrance, after the manner of a trap-door for cats' egress, so narrow that only one man can pass in or out at a time, and that with effort. Others (whom I believe to be their ministers) occupy dwellings close to the statues; these are built of earth below, but with an entrance way or porch of very roughly hewn and clumsily set up stones, after the fashion of a wall, with a certain number of steps for passing from one platform or surface of ground to another on different levels. It is known that they work the stone, on which may be seen several different figures, squares, oblongs, arcs [*rumbos*], triangles, and trapezia, by means of another stone of harder substance than the mass, and the same method is followed, I believe, in fashioning the statues.

On the afternoon of this day during a rain squall with little wind from the S.W. our cable parted, having chafed completely through against a coral rock, fragments of which came up embedded among the strands of the two broken ends. We spent the evening in making ready for the succeeding day, on which we were to formally disembark and take possession of the island, and to erect upon it three crosses which had been got ready for the purpose on board the Commodore.

15:Routledge E-5 (1914-1915) 1919
OY2 Easter Islanders OY2

316 483 been abandoned; but it is at least equally possible that for the purpose of bringing it down, a bank or causeway of earth had been built up to level the inequalities of the descent, and that it was resting on this when the work came to an end; the soil would then in time be washed away, and the figure fracture through loss of support.

316 In the quarry which is shown in fig. 54, the finished head can be seen lying across the opening, the body is missing, presumably broken off and buried; the bottom of the keel on which the figure at one time rested can be clearly traced in a projecting line of rock down the middle of its old bed, also the different

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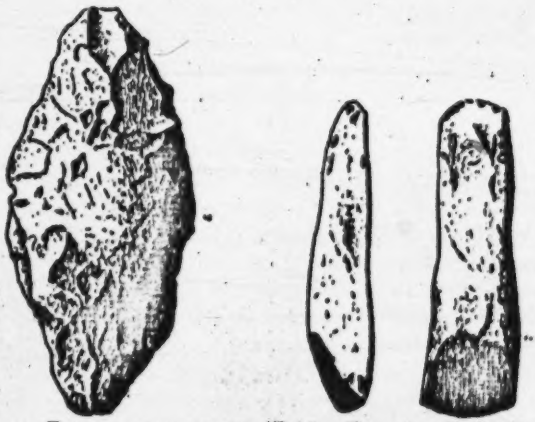

FIG. 52. STONE TOOLS (*Toki*). FIG. 53. *H. Balfour del.*

sections where the various men employed have chipped away the stone in undermining the statue. In the quarry wall the niches occupied by the sculptors are also visible, at more than one level, the higher ones being discarded when the upper portion of the work was finished and a lower station needed. The hand of the standing boy in fig. 51 rests on a small platform similarly abandoned.

316 324 412 The tools were found with which the work has been done. One type of these can be seen lying about in great abundance (fig. 52). They are of the same material as the lapilli in the statues, and made by flaking. Some specimens are pointed at both ends,

15:Routledge E-5 (1914-1915) 1919
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others have one end more or less rounded. It is unlikely that they were hafted, and they were probably held in the hand when in use. They were apparently discarded as soon as the point became damaged. There is another tool much more carefully made, an adze blade, with the lower end bevelled off to form the cutting edge. In the specimen shown, the top is much abraded apparently from hammering with a maul or mallet (fig. 53). These are rarely found, the probability being that they were too precious to leave and were taken home by the workmen. The whole process was not necessarily very lengthy; a calculation of the number of men who could work at the stone at the same time, and the amount each could accomplish, gave the rather surprising result that a statue might be roughed out within the space of fifteen days. The most notable part of the work was the skill which kept the figure so perfect in design and balance that it was subsequently able to maintain its equilibrium in a standing position; to this it is difficult to pay too high a tribute.

It remains to account for the vast number of images to be found in the quarry. A certain number have, no doubt, been abandoned prior to the general cessation of the work; in some cases a flaw has been found in the rock and the original plan has had to be given up—in this case, part of the stone is sometimes used for either a smaller image or one cut at a different angle. In other instances the sculptors have been unlucky enough to come across at important points one or more of the hard nodules with which their tools could not deal, and as the work could not go down to posterity with a large wart on its nose or excrescence on its chin, it has had to be stopped. But when all these instances have been subtracted, the amount of figures remaining in the quarries is still startlingly large when compared with the number which have been taken out of it, and must have necessitated, if they were all in hand at once, a number of workers out of all proportion to any population which the island has ever been likely to have maintained. The theory naturally suggests itself that some were merely rock-carvings and not intended to be removed. It is one which needs to be adopted with caution, for more than once, where every appearance has pointed to its being correct, a similar neighbour has been found which was actually being removed; on the whole, however, there can be

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between the mountain in the apex and the cliff, and mixed up with them was a lesser people, the Hamea. To the east was another small clan, the Raa, which is spoken of in conjunction with the Miru and Hamea.

The principal Hotu Iti clans were the Tupahotu, the Koró-orongo, and the Hitiuira. The last were generally known as the "Ureohei"; they inhabited jointly the level piece of ground from the northern bay to the south coast, and had some dwellings on the eastern headland. Next to them on the south coast was a small group, the Ngaure.[1] The particular importance of the clans lies in the fact that, while they may be merely groups of one body, they may, on the other hand, represent different races or waves of immigrants. If there have been two peoples on Easter Island, these divisions are one place where we must at least look for traces for it.

Legend tells of continual wars between Hotu Iti and Kotuu. In recent times general fighting seems to have been constant, and took place even between members of one clan. A wooden sword, or paoa, was used, but the chief weapon was made from obsidian, and took from it the name of "mataa." This volcanic glass is found on the slope of Rano Kao, but the principal quarries are on the neighbouring hill of Orito. Tradition says its use was first discovered by a boy who stepped on it and cut his foot. The obsidian was knapped till it had a cutting edge, and also a tongue, which latter was fitted into a handle or stick (fig. 92). The various shapes assumed were dignified by names, fourteen of which were given, such as "tail of a fish," "backbone of a rat," "leaf of a banana." It was very usual to pick up these mataa, and hoards were occasionally found; in one instance fifty or sixty were discovered below a stone in a cave, and in another case the hammer-stone was found with them which had been used in the process of squeezing off the flakes. The weapon was

[1] Of these clan names, "Raa" means the sun and "Marama" the light. The signification of the others is not equally clear, and the natives could give no assistance; but Mr. Ray gives the following interesting information from other Polynesian sources. "Haumoana" means the sea-breeze; "Hitiuira" is probably "hiti-ra" or sunrise; and "Ure-o-hei" another version of "ura-o-hehe," or red of sundown. "Koro-orongo" is doubtless from "Koro-o-Rongo," or the ring of Rongo (a well-known Polynesian deity), that is the rainbow. "Kotuu" appears to be a contraction of "Ko Otuu," meaning "The Hill"; the name "Otuu" is used alternatively for the same district. "Hotu" is another form of the word for hill and "Iti" signifies small, it presumably refers to Rano Raraku.